

Deciphering signals of the past – geochemical investigation of human remains

The mineralisation of dental tissues is extremely valuable for reconstructing early-life experiences occurring during teeth formation. Each day the cells responsible for the formation of enamel and dentine deposit a new layer of tissue, thus creating a sequential record. The elemental intake and mineralization pattern of the dental tissues are strongly influenced by the individual interaction with their immediate surroundings. Teeth, therefore, represent a unique temporal record of the paleoecology of the individual development during early childhood. Nursing behavior, diet, trophic level, stress, seasonal compartment, disease and natural toxicant exposure remain archived in the deceased dental tissues, and are obtained using high resolution geochemical mapping.

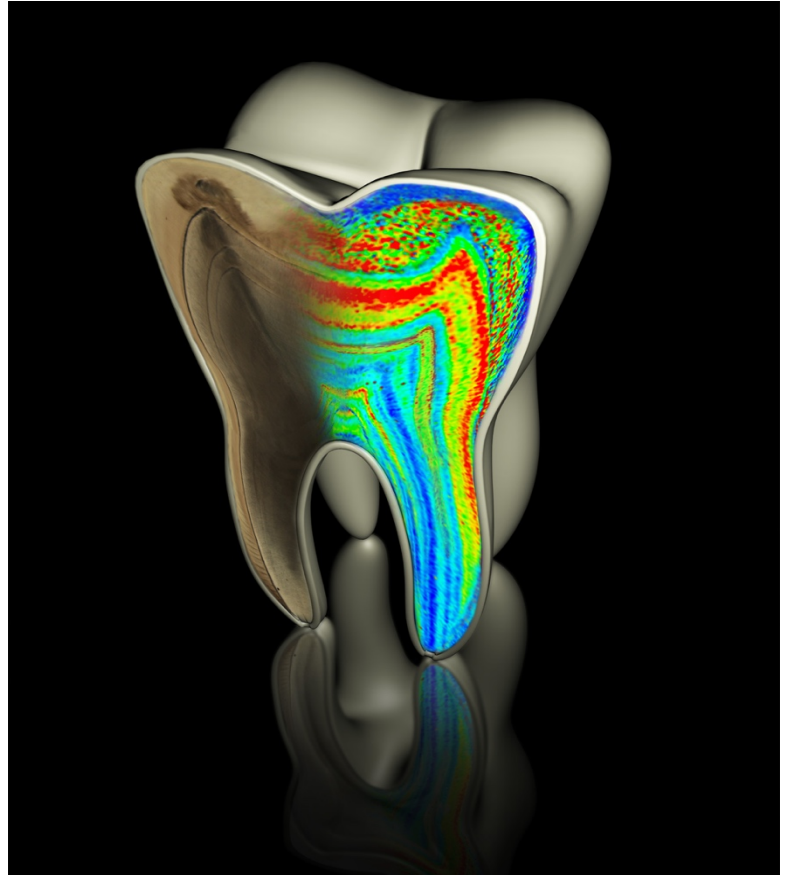


Illustration of the geochemical signal in a 200,000-years-old Neanderthal child molar from Scladenia.

We are looking for a highly motivated Honours student to work on intriguing human remains, to better our understanding of the geochemical signal in teeth. It will involve deciphering the elemental and isotopic distribution in human remains dental tissues, using an advanced Laser-ablation mass spectrometer facility located at Southern Cross University.

The successful candidate has ideally an earth, environment, or biomedical science background, but most importantly is eager to learn new techniques in an exciting and interdisciplinary project ranging from anatomy and histology to geochemistry, mass spectroscopy and human evolution.

If you are interested please contact A. Prof Renaud Joannes-Boyau (renaud.joannes-boyau@scu.edu.au) for more details.